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ABSTRACT

The inconclusive results of research comparing beginning reading methodologies in the 1960s led many schools to change their approaches to beginning reading instruction. In the 1970s the focus has shifted from the belief in a single method as superior for all children to the attempt to match methodology to the needs of individual children. A review of the literature of the 1970s reveals that research findings dealing with the relationship between predetermined modality preference and reading achievement have been divided. Some investigators have maintained that predetermined modality preference is an important consideration in early reading achievement; others, however, maintain that predetermined modality preference does not appear to have a direct bearing on reading achievement. Research on modality preferences similar to other studies based on the aptitude treatment interaction model have had two major problems: discreteness of learner classification and homogeneity of treatment. Further research is needed to clarify the relationship between predetermined modality preference and reading achievement. (DF)

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DOES MODALITY PREFERENCE MAKE a DIFFERENCE? The Results of a Three-Year Study--Literature Review

Meeting: Reading Strategies that Make a Difference
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DOES MODALITY PREFERENCE MAKE a DIFFERENCE? The Results of a Three-Year Study--Literature Review

The inconclusive results of research that compared beginning reading methodology in the 1960s led many schools to change their approaches to initial reading instruction. The focus in the 1970s has shifted from belief in the superiority of a single method for all children to the practice that methodology should attempt to match the strengths of individual children. Early evaluation of each child's abilities is the key to the prevention of reading failure.

Studies of the 1970s use assessment data to provide information about alternative instructional programs and/or educational placement. Jansky and de Hirsch (1972) advocate a broad-based intervention program which includes the home, community, and school. Others recommend differentiated educational placement (Book, 1974; Shohen, 1973). Diagnostic/prescriptive strategies and specific perceptual training programs are advocated as effective ways of eliminating early reading failure (Lesiak and Wait, 1974; Gaither, 1973; Oakland and others, 1973). Because the present study deals with modality preference and its relationship to reading achievement, however, only those studies which relate to the topic of "modality" will be included in this review of literature.

Sensory Modality Preference

Increasingly investigators have been calling for a more direct application of the results of early assessment data and the choice of instructional strategies used in beginning reading (Hillerich, 1975; Keogh, 1977). Hillerich (1975) contends that too often identification procedures are nothing more than successful attempts to predict reading failure. He suggested a diagnostic/prescriptive battery which identifies the child's strengths and weaknesses so that early instruction can utilize pupil strengths while at the same time alleviating his weaknesses. Keogh (1977) offered a similar view:

> It is important that screening techniques or tests lead to educational decisions about instruction--not just placement or categorization of children. In particular, screening must be directed at identification of competencies which can be used to ensure success. There are seemingly an infinite number of ways to fail but competencies can be used to build success in educational tasks (p. 269)

Using early assessment data to determine the child's sensory modality preference for the purpose of selecting an initial reading program which is congruent with that preference is one way to ensure the child's success. The modality preference concept could be viewed in terms of the aptitude treatment interaction model (ATI). Aptitude has usually been defined as any characteristic of the individual that increases or impairs his probability of success in a given treatment; and treatment as any variation in the style or pace of instruction (Tobias, 1976).

When the ATI model is applied to sensory modality preference, it is hypothesized that children who demonstrate an auditory preferred learning style will achieve higher scores on measures of reading achievement when the initial reading program is highly auditory. A similar hypothesis would hold for visual and eclectic learners.

An ATI model has two sets of problems: discreteness of aptitude differences and homogeneity of treatments. Do learners demonstrate distinct auditory or visual sensory modality preferences? Do different initial reading programs teach primarily to the auditory or visual channels? These are difficult questions and the answers provided by research are divided. Some researchers suggest that sensory modality preferences should be determined and considered in selecting instructional strategies for reading (Wepman, 1960, 1964, 1968; Bursuk, 1971; Wepman and Morency, 1971; Daniel and Tacker, 1974; Rudel and Denckla, 1976; Fox, 1976; Dunn, Dunn and Price, 1977). Others maintain that predetermined modality preference does not appear to have a direct bearing on the improvement of reading achievement scores (Bateman, 1968; Robinson, 1972; Bruininks, 1969; Vandever and Neville, 1974; Silverston and Deichman, 1975; Ringler, Smith and Sullinan, 1971).

Wepman (1968) stated that the concept of modality preference argues for tailoring instruction to the capacities of the individual child. He recommended a sight approach for pupils with poor auditory discrimination and a phonic approach for pupils with adequate or good auditory discrimination.

Bursuk's (1971) study investigated the relationship between modality preference, mode of presentation, and reading achievement. She found a correlated aural-visual method was more effective for students with auditory or no sensory modality preference while the visual approach was more effective for those with visual learning preferences. These findings are in agreement with Wepman's position.

Daniel and Tacker's (1974) study on modality preference and memory for consonant-vowel-consonant (CVC) triagrams found that auditory preferred learners recalled significantly more triagrams after an auditory presentation than after a visual one, and conversely visual prefered learners recalled more stimulae when they were presented visually. They concluded that "teachers and clinicians should investigate the possibility of matching learning approach with sensory preference"(p. 258).

Three other studies which indicate that sensory modality preference may be an important factor in learning and retention are Suchman and Trabasso (1966), Meehan (1974), and Stephen and Kelleher (1973). In Suchman and Trabasso's (1966) study on stimulus preference and cue function in young children, it was found that stimulus preferences act as initial perceptual responses to shape the order of concept attainment.

Meehan (1974) suggested the use of an informal modality inventory with students at the fourth-grade level who have not made progress in reading that is commensurate with their age and ability. The inventory is based on activities suggested in Aids to Psycholinguistic Teaching by Bush and Giles.

Stephen and Kelleher (1973) examined the relationship between modality strength and retention. They found that performance on auditory memory and visual memory was significantly related to the amount of information retained in continuous discourse under differing presentation modes. They noted the need for further research on this point.

Wepman and Morency (1971) conducted a longitudinal study on the relationship of visual and auditory processing ability and school achievement. They found that perceptual abilities reached their crest by the end of third grade but that perceptual lags have a continuing relationship to school achievement throughout the sixth grade. They recommended that researchers should study the relative values of training to alleviate perceptual defects or focusing upon early instruction which utilizes the preferred modality.

Rudel and Dencka (1976) investigated the relationship of IQ and reading achievement to visual, spatial and temporal matching tasks. In discussing the educational implications of their findings, they suggested that the child who does well on visual-spatial tasks might benefit from a sight approach to initial reading instruction while the child who is better at temporal processing might learn phonics and blending with greater ease. This consideration of the relative strength of the child's processing skills should facilitate reading achievement.

Fox (1976) reviewed the research findings related to children's perception of language and made proposals for beginning reading instruction. She noted that while the majority of first=grade children should be able to segment short

sound sequences, some still experience difficulty with this task. Fox concluded that for those children who cannot segment short sound sequences, the initial reading program should focus on a sight approach and not emphasize letter-sound associations.

Faulke (1974) discussed the relationship of language development and early reading instruction. She identified the stages of early language development, compared normal and abnormal language skills, explored characteristics of school age language-impaired children and recommended specific instructional practices. In discussing general teaching techniques, her first recommendation related to perceptual processing skills. Faulke advised that the child should be allowed to learn through his/her best channel. In working with visual preferred learners, teachers should make use of visual cues; with auditory preferred learners, teachers should make maximal use of auditory cues.

Dunn, Dunn and Price (1977) recommended diagnosing learning styles as a prescription for avoiding malpractice suits. They designed the Learning Style Inventory (LSI) to measure a broad range of learner preferences. In 1975, they administered it to 110 students in grades three, four, seven and eleven to determine the comparative perceptions of individual students and their teachers concerning the students' learning styles. Interestingly, both teachers and students recognized that certain students preferred learning through tactile or kinesthetic means, supplemented by the visual; however, it had been stated that 90 percent of instruction occurred through the lecture method. Thus, the majority of instruction for this group had been through perceptual means that were not congruent with their prefered learning

style. If any of these students happened to be nonachievers, and if their parents decided to take legal action against the schools for employing methods that inhibited their children's learning efforts, would not the schools regret having used inappropriate methodology for these youngsters? Diagnosis at least verifies that teachers have attempted to ascertain how individual students learn.

Bateman's (1968) study of visual and auditory modalities and their relationship to initial reading instruction supported the position that predetermined modality preference does not appear to have a direct bearing on reading achievement scores. Her sample consisted of 182 children in eight kindergarten classes. The Illinois Test of Psycholinguistic Abilities (ITPA) was administered to four of these classes in order to divide them into auditory and visual preference groups. In first grade, half of the auditory subjects were taught with an auditory method and the other half with a visual method. The same procedure was followed for those who had been identified as visual learners. The visual subjects used the Scott Foresman New Basic Reader and the auditory groups used the Lippincott Basic Reading Series. According to Bateman's results, auditory learners made significantly greater gains than visual learners on measures of reading achievement. No significant interaction between modality preference and instructional method was found.

There were two major weaknesses in Bateman's (1968) study: one related to the discreteness of learner differences

and the other to the homogeneity of treatments. Bateman assumed that all subjects would have either an auditory or visual modality preference when she assigned 50 percent of the subjects who had taken the ITPA to the auditory group and 50 percent to the visual group. Many of the children in the visual group actually scored higher on the Auditory Sequential Memory (ASM) subtest of the ITPA than they did on the Visual Sequential Memory subtest. Another weakness related to the instructional materials used with the visual learners. The Scott Foresman basal is an eclectic program which uses both auditory and visual approaches to initial reading instruction rather than primarily a visual one.

Robinson (1972) investigated the reading achievement of pupils with differing visual and auditory abilities when they were instructed by two different approaches. She classified 448 first graders as either high visual-high auditory, low visual-low auditory, high visual-low auditory or low visual-high auditory on the basis of their performance on three visual discrimination tests and the Wepman Auditory Discrimination Test (WAD). Two basal readers (Ginn and Scott Foresman) were used as sight approaches and the Hay Wingo materials were used as the phonic or auditory material. She found that children who scored high in both auditory and visual modalities also scored highest on tests of reading achievement at the end of first and third grades. Those who were low in both modalities scored lowest in achievement and those with one strong and one weak modality scored between the two extremes. Neither the sight nor the phonic

method was superior among pupils with strong and weak modalities. Auditory discrimination was significantly correlated with reading achievement at both first-and third-grade levels, regardless of the method used in instruction.

Robinson's (1972) study was generally well planned and executed; however, with regard to discreteness of learner classification, the only measure of auditory ability used was the WAD. Can auditory processing ability be accurately identified with the use of one test? Her visual classifications appear to be more accurate, since they were based on three discrete measures. The other weakness lies in the use of basal reading programs that again would be classified more accurately as eclectic.

Bruinicks (1969) investigated whether subjects who show a preference for either the auditory or visual modality also show a preference for certain methods of instruction. He tested 105 black males in second and third grade with a battery of six auditory and six visual perceptual tests. On the basis of these data, Bruinicks selected twenty auditory learners and twenty visual learners. Each subject was taught to recognize fifteen unknown words using a sight approach and fifteen unknown words using a phonic approach. The words were taught in two lessons, each twenty-three minutes in length. Immediate learning and delayed recall were tested. Analysis of variance was employed to analyze the scores of the two preference groups. Neither group demonstrated a preference for either method of teaching new words. Auditory perceptual tests were more highly correlated with reading achievement of third

graders than visual perception tests. These findings are in agreement with Bateman (1968) and Robinson (1972).

Again, in Bruininks' (1969) study, discreteness of learner classification is questioned since perceptual integration tasks were included as measures of modality preference. Perceptual integration tasks more accurately measure intersensory processing than intrasensory preferences. A secondary consideration is the limited length of treatment. Is it possible to assess the effectiveness of presentation mode from one twenty-three minute lesson? Perhaps this feature of the design was unrealistic for second- and third-grade students.

Three other studies which support the position that predetermined modality preference does not appear to have a direct bearing on reading achievement are discussed briefly. Vandever and Neville (1975) examined the relationship between modality aptitude and word recognition across three modalities: visual, auditory and kinesthetic. At the close of six weeks, children taught to strengths did no better than those taught to weaknesses. Sabatino and Dorfman (1974) matched learner aptitude with the primary teaching strategies used by two commercial reading programs. The results of this study did not support the modality concept.

Ringler, Smith and Cullinan (1971) used The New York University Modality Test (NYUMT) to classify the learning preferences of 128 first-grade children. Thirty of the children demonstrated an auditory preference; thirty-three a visual preference; twenty-

eight a kinesthetic preference; thirty-seven had no preference. The subjects within each modality group were assigned randomly to one of five groups: auditory, visual, kinesthetic, combined and control. The learning task for each experimental group consisted of a list of fifty words identified as part of the children's speaking vocabulary, but not formally taught in the classroom. The experimental groups received seven-and-one-half hours of small group instruction on the fifty words. The presentation in each experimental group was consistent with the group label, for example, visual group used a sight approach, and so forth. The control group did not receive any instruction on the list of words; however, all subjects continued to receive developmental reading instruction in the classroom. The findings indicated that the experimental groups did significantly better than the control group but did not differ significantly from each other. Pupils who were taught using their preferred modality did not make significantly greater gains than those who received instruction through some mode other than their preferred one.

Silverston and Deichman (1975) reviewed the literature on sensory modality and its relationship to the acquisition of reading skills. They concluded that predetermined modality preference as it is presently defined does not appear to influence reading achievement directly. However, they caution the reader to view their conclusion with skepticism due to the variation in instrumen-

tation and experimental foci in the various studies.

Summary

Recent literature on modality preference has been reviewed. Findings on the relationship between predetermined modality preference and reading achievement were divided. Some investigators maintained that predetermined modality preference was an important consideration in early reading achievement (Wepman, 1968; Bursuk, 1971; Wepman and Morency, 1971; Daniel and Tacker, 1974; Dunn, Dunn and Price, 1977). Others maintained that predetermined modality preference did not appear to have a direct bearing on reading achievement (Bateman, 1968; Robinson, 1972; Bruininks, 1969; Silverston and Deichmann, 1975; Ringler, Smith and Cullinan, 1971). Research on modality preferences similar to other ATI studies had two major problems: discreteness of learner classification and homogeneity of treatment. Further research is needed to clarify the relationship between pre-determined modality preference and reading achievement.

LIST OF REFERENCES

Books and Monographs

Bush, Wilma and Giles, Marian. Aids to psycholinguistic teaching. Columbus, O.: Charles E. Merrill, 1969.

Jansky, Jeanette and de Hirsch, Katrina. Preventing reading failure. New York: Harper and Row, 1972.

Articles and Papers

Bateman, Barbara. "The efficacy of an auditory and a visual method of first grade reading instruction with auditory and visual learners." In Perception and Reading, Helen K. Smith (Ed.) Proceedings of the Twelfth Annual Conference, IRA, Vol. 12, Part 4, 1968, 105-112.

Book, Robert M. "Predicting reading failure: A screening battery for kindergarten children." Journal of Learning Disabilities, 1974, 7, 43-47.

Bruininks, R. H. "Auditory and visual perceptual skills related to reading performance of disadvantaged boys." Perceptual and Motor Skills, 1969, 29, 179-186.

Bursuk, L. "Sensory mode of presentation as a factor in the reading comprehension improvement of adolescent retarded readers." Paper presented at the annual convention of the American Educational Research Association, 1971.

Daniel, P.N., and Tacker, R. S. "Preferred modality of stimulus input and memory for CVC triagrams." The Journal of Educational Research, 1974, 67, 255-258.

Dunn, R., Dunn, K., and Price, G. E. "Diagnosing learning styles: A prescription for avoiding malpractice suits." Phi Delta Kappan, 1977, 58, 418-420.

Foulke, P. N. "How early should language development and pre-reading experience be started." Elementary English, 1974, 51, 310-315.

Fox, B. C. "How children analyze language: Implications for beginning reading instruction." Reading Improvement, 1976, 13, 229-234.

Gaither, Dorothy J. "A diagnostic-prescriptive reading program." International Reading Association Conference Papers, Literacy for Diverse Learners, 1973, 18, 56-59.

Hillerich, Robert L. "Kindergarten screening procedures: Early identification or merely early labeling?" Paper presented at the annual meeting of the International Reading Association, New York City, May, 1975. (ED 103825)

Keogh, Barbara K. "Early ID: Selective perception or perceptive selection?" Academic Therapy, 1977, 12, 267-274.

Lesiak, W. J., and Wait, J. A. "Identification and programming of children with learning problems." Psychology in the Schools, 1974, 11, 282-290.

Meehan, T. "Informal modality inventory." Elementary English, 1974, 51, 901-904.

Oakland, Thomas D., Williams, Fern C., and Harmer, William R. "Longitudinal study of auditory perception and reading instruction with first grade Negro children." The Journal of Special Education, 1973, 7, 141-154.

Ringler, L. H., Smith, I. L., and Cullinan, B. E. "Modality preference, differentiated presentation of reading tasks, and word recognition of first grade children." Paper presented at the annual convention of the International Reading Association, 1971.

Robinson, Helen M. "Visual and auditory modalities related to methods for beginning reading." Reading Research Quarterly, 1972, 8, 7-39.

Rudel, R. G., and Denckla, M. B. "Relationship of IQ and reading score to visual, spatial, and temporal matching tasks." Journal of Learning Disabilities, 1976, 9, 169-178.

Sabatino, D. A., and Dorfman, N. "Matching learner aptitude to two commercial reading programs." Exceptional Children, 1974, 41, 85-90.

Shohen, Sam. "An extended first and second grade readiness class: Content and outcomes." International Reading Association Conference Papers, Literacy for Diverse Learners, 1973, 18, 48-55.

Silverston, R. A., and Deichmann, J. W. "Sense modality research and the acquisition of reading skills." Review of Educational Research, 1975, 45, 149-172.

Stephen, L. M., and Kalleher, J. "Modality strength and aptitude treatment intervention." Journal of Special Education, 1973, 7, 5-13.

Suchman, R. G., and Trabasso, T. "Stimulus preferences and cue function in young children's concept attainment." Journal of Experimental Child Psychology, 1966, 3, 188-193.

Tobias, Sigmund. "Achievement treatment interaction." Review of Educational Research, 1976, 46, 51-74.

Vandever, T. R., and Neville, D. D. "Modality aptitude and word recognition." Journal of Reading Behavior, 1974, 6, 195-201.

Wepman, J. M. "Auditory discrimination, speech and reading." Elementary School Journal, 1960, 60, 325-333.

_____. "The modality concept--including a statement of the perceptual and conceptual levels of learning." In Perception and Reading. Proceedings of the Twelfth Annual Convention, International Reading Association, 1968, 12, 1-6.

_____. "The perceptual basis for learning." Meeting Individual Differences, H. Alan Robinson (Ed.). Supplementary Educational Monographs, 94, Chicago: University of Chicago Press, 1964, 25-53.

Wepman, J. M., and Morency, A. S. "School achievement as related to speech and perceptual handicaps." Final Report Project 70461, U.S. Department of Health, Education, and Welfare. University of Chicago, June 1971.

Tests and Instructional Materials

Kirk, S. A., McCarthy, J. J., and Kirk, W. D. Illinois Test of Psycholinguistic Abilities. Revised edition. Urbana, Ill.: University of Illinois Press, 1968.

Wepman, Joseph M. Wepman Auditory Discrimination Test. Chicago: Language Research Association, 1973.